CHARGE NUMBER: 6908

PROGRAM TITLE: SMOKE CONDENSATE STUDIES

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I. NITROSAMINES

Nicotine-N'-oxide (NN'O) has been prepared for testing as a pyrosynthetic precursor of tobacco specific nitrosamines (TSNA) [1]. The product obtained appears to be a combination of cis and trans isomers. This product was applied to genetically low alkaloid burley filler (J5BUV) and the mainstream (MS) smoke from handmade cigarettes was analyzed for TSNA content. While NNK levels were greater than those measured for the untreated control, the primary difference attributable to the NN'O was a dramatic increase in MS NNN levels. Formation of NNN was not expected to be the preferred reaction path for NN'O, but these results indicate that NN'O may be an alkaloid progenitor of pyrosynthesized NNN.

Cigarettes made from filler treated with tocopheryl acetate (TA) were analyzed for MS TSNA content this month [1]. TSNA results obtained from three different TA-treated fillers have shown much more smoking-to-smoking variability than is usually observed. Whether this is due to uneven coating during the spraying process or an instability of the TA after application is not known, but studies of this potential inhibitor have been suspended.

Filler and MS TSNA values for new lots of genetically low alkaloid (LA) bright (Br) and burley (Bu) tobacco were determined [2]. Results from these analyses were compared with TSNA levels of previous lots of LA Br and Bu. Filler results for the two LA Bu samples were in reasonable agreement, but MS NNN and NNK deliveries were significantly greater for the newer lot. The newer LA Br sample had substantially lower filler TSNA levels, with some reduction in MS NNN and NAT. These results are consistent with the greater than expected MS TSNA delivery obtained for the recent machine-made low alkaloid blends.

Investigations of apparent artifactual formation of TSNA during smoke collection have been continued [3]. Increases in collection time and ascorbic acid levels both yielded increased TSNA levels. Addition of nornicotine to the bubbler traps resulted in increases in all three TSNA, suggesting that the observed artifacts may be due to transnitrosation reactions. Experiments to evaluate the possibility of transnitrosation in the bubbler trap environment are planned, in addition to tests of alternate inhibitors and a determination of the effect of trap pH.

II. MAINSTREAM SMOKE STUDIES

Mainstream smoke was collected from nine different cigarette codes in twenty-eight smoking experiments for testing by members of Project 6906 [4]. New cigarette inventory procedures were implemented for cigarettes being transferred to off-site cold storage [4].

III. REFERENCES

1. Haut, S. A. Notebook 8167, p. 189.

2. Lambert, E. A. Notebook 8240, p. 39.

3. Morgan, W. R. Notebook 8218, p. 147.

4. Hellams, R. D. Notebook 8250, p. 65.

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